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RF-07364

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9-21-95

REPLY TO RF CC NO

None

TION ITEM STATUS

PARTIAL/OPEN

CLOSED

APPROVALS

ORIG & TYPIST INITIALS

SJH kam

46469 (REV 7/95)



KAISER-HILL  
COMPANY

September 21, 1995

95-RF-07364

Jessie M Roberson, Assistant Manager  
Environmental Restoration  
DOE, RFFO

TRANSMITTAL OF THE OPERABLE UNIT (OU) 11 FINAL CORRECTIVE ACTION  
DECISION/RECORD OF DECISION (CAD/ROD) - TGH-270-95

Action Request transmittal of the Final CAD/ROD to the regulatory agencies for approval

The purpose of this correspondence is to formally transmit the OU 11 Final CAD/ROD (Enclosure 1) to the Department of Energy, Rocky Flats Field Office for submittal to the Environmental Protection Agency and the Colorado Department of Public Health and Environment for approval (see draft letter included as Enclosure 2) This document includes the Final Responsiveness Summary. Submittal of this document to the regulatory agencies by September 29, 1995, fulfills two Interagency Agreement (IAG) milestones, submittal of the Final CAD/ROD and submittal of the Final Responsiveness Summary Included with this transmittal is the responses to the regulatory agencies comments on the Draft CAD/ROD (Enclosure 3)

If you have any questions or require further information, please call Stephen Hahn, of my staff, at extension 9888

T G Hedahl, Director  
ER/WM&I Operations

SJH kam

Orig and 1 cc - J M Roberson

Enclosures.  
As Stated (3)

cc (w/o Enclosures)  
D A Booco - RMRS - T130F  
R C Fitz - " - 080  
J E Law - " - 080  
J L McAnally - " - T130F  
A M Parker - " - 080  
D L Schubbe - " - 080

Kaiser-Hill Company, L L C

Courier Address Rocky Flats Environmental Technology Site State Hwy 93 and Cactus Rocky Flats CO 80007 • 303 466 7000  
Mailing Address PO Box 464 Golden, Colorado 80402 0464

ADMIN RECORD

A-OU11-000175

# ER/WM&I Transmittals

\_\_\_\_\_  
IAG milestone

**Source/Driver:** (Name & Number from  
ISP, IAG milestone, Mgmt Action, Corres  
Control, etc )

45RF0736A  
\_\_\_\_\_  
**Closure #.** (Outgoing Correspondence  
Control #, if applicable)

\_\_\_\_\_  
**Due Date**

D.A. Booco Daniel Booco  
\_\_\_\_\_  
**Originator Name**

John E. Parker  
\_\_\_\_\_  
**Contractor Manager(s)**

Steve J. Hahn  
\_\_\_\_\_  
**Kaiser-Hill Program Manager(s)**

Tim G. Hedahl  
\_\_\_\_\_  
**Kaiser-Hill Director**

## Document Subject:

TRANSMITTAL OF THE OPERABLE UNIT (OU) 11 FINAL CORRECTIVE ACTION DECISION/RECORD  
OF DECISION (CAD/ROD) (KH00003NS1A) - AMP-093-95

95-RM-ER-094-KH

## Discussion and/or Comments:

The purpose of this correspondence is to formally transmit the document titled, "Final Corrective Action Decision/Record of Decision OU 11 West Spray Field" This document includes the Final Responsiveness Summary Submittal of this document to the Colorado Department of Public Health and Environment and the Environmental Protection Agency by September 29, 1995, fulfills two Interagency Agreement (IAG) milestones, submittal of the Final CAD/ROD and submittal of the Final Responsiveness Summary Included with this transmittal is the response to the regulatory agencies comments on the Draft CAD/ROD

If you have any questions concerning this correspondence, please contact Dan Booco of Rocky Mountain Remediation Services, L L C at extension 8549

cc  
D A Booco - RMRS - w/o encl T130F  
R C Fitz -- RMRS - w/o encl 080  
J E Law - RMRS - w/o encl 080  
J L McAnally - RMRS - w/o encl T130F  
A M Parker - RMRS - w/o encl 080  
D L Schubbe - RMRS - w/o encl 080  
RMRS Records  
ER Project File (2)

Enclosures  
As Stated

22 041 F

Enclosure 2  
95-RF-07364  
Page 1 of 1

DRAFT

DRAFT

DRAFT

Mr. Martin Hestmark  
U S Environmental Protection Agency, Region VIII  
ATTN Rocky Flats Project Manager, 8HWM-RI  
999 18th Street, Suite 500, 8WM-C  
Denver, Colorado 80202-2405

Mr. Joe Schieffelin, Unit Leader  
Hazardous Waste Control Program  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, Colorado 80222-1530

Gentlemen

Enclosed for your approval is a copy of the Operable Unit 11, West Spray Fields, Final Corrective Action Decision/Record of Decision (CAD/ROD) document and Responsiveness Summary (Enclosure 1). Submittal of these documents meets the requirements as set forth in the Interagency Agreement as amended by the Colorado Department of Public Health and the Environment's letter dated June 22, 1995. Included with this transmittal is the responses to the regulatory agencies comments on the Draft CAD/ROD (Enclosure 2).

If you have any questions please contact \_\_\_\_\_ at \_\_\_\_\_

Enclosures  
As Stated (2)

## RESPONSE TO COMMENTS ON THE OU 11 DRAFT CAD/ROD

The following is a response to the Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) comments on the Operable Unit (OU) 11 Draft Corrective Action Decision/Record of Decision (CAD/ROD). These comments were provided during a meeting on September 15, 1995, attended by representatives from the EPA, CDPHE, Department of Energy (DOE), Kaiser-Hill, and Rocky Mountain Remediation Services (RMRS).

- 1 Comment - Page 1, "Description of Selected Remedy" section, 2nd sentence Capitalize the word "action" in order to be consistent with the rest of the document

Response - Comment incorporated

- 2 Comment - Page 3, "Site History and Enforcement Activities" section, 2nd paragraph Add sentence concerning removal of piping from OU 11

Response - The sentence "Piping used during the spray operations was removed from OU 11 during the summer of 1994" was added at the end of this paragraph

- 3 Comment - Page 5, "Site Characteristics" section, 3rd paragraph, 2nd to last sentence Delete words "appear to" from this sentence

Response - This sentence was reworded to state "The geochemical behavior of americium and plutonium is dominated by their propensity to bind to soils under the geochemical conditions found at OU 11 and these radionuclides have exhibited little migration since the termination of spray activities"

- 4 Comment - Page 5, "Summary of Site Risks" section, 2nd paragraph Add short explanation of CDPHE screen

Response - Comment incorporated

- 5 Comment - Page 5, "Summary of Site Risks" section, 2nd paragraph, item 4 Change "PCOC" to "COC" to be consistent with the rest of the document

Response - Comment incorporated



# **Final Corrective Action Decision/ Record of Decision**

## **OU11: West Spray Field**

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**The Rocky Flats Environmental Technology Site  
Golden, Colorado**

**September  
1995**

### **Site History and Enforcement Activities**

Rocky Flats is a government-owned, contractor-operated facility, which is a part of the nationwide nuclear weapons complex. The site was operated for the U S Atomic Energy Commission (AEC) from its inception during 1951 until the AEC was dissolved during 1975. Responsibility for Rocky Flats was assigned to the Energy Research and Development Administration (ERDA), which was succeeded by DOE during 1977. Previous operations at Rocky Flats consisted of fabrication of nuclear weapons components from plutonium, uranium, and nonradioactive metals (i.e., stainless steel and beryllium).

Between April 1982 and October 1985, OU 11 was used for periodic spray application of excess liquids pumped from Solar Evaporation Ponds 207-B North and 207-B Center as a means of evaporating waste water. When the storage capacity of one of these ponds was reached, the liquids were pumped to OU 11 via an aboveground pipeline for spray application. The sources of waste water stored in the Solar Evaporation Ponds and sprayed at OU 11 included effluents from the Sewage Treatment Plant and water collected in the Interceptor Trench System. Approximately, 66 million gallons from the Solar Evaporation Ponds were sprayed at OU 11. The pond liquids contained elevated levels of nitrates, metals, radionuclides, volatile organic compounds and semivolatile compounds. Piping used during the spray operations was removed from OU 11 during the summer of 1994.

Various studies were conducted at Rocky Flats to characterize environmental media and to assess the extent of radiological and chemical contaminant releases to the environment. The investigations performed before 1986 were summarized by Rockwell International (1986a). During 1986, two investigations were completed at the site. The first was the DOE Comprehensive Environmental Assessment and Response Program (CEARP) Phase I Installation Assessment (*U S DOE, 1986*). A number of sites that could potentially have adverse impacts on the environment were identified and designated as Solid Waste Management Units (SWMUs) within the CEARP of Rocky Flats. A result of this investigation was that OU 11 was identified as a SWMU because of spray application of liquids from the Solar Evaporation Ponds. The second investigation involved a hydrogeologic and hydrochemical characterization of Rocky Flats (Rockwell International, 1986b).

On January 22, 1991, a Federal Facility Agreement and Consent Order (i.e., the Interagency Agreement (IAG)) was signed by DOE, EPA Region VIII, and the State of Colorado. Within the IAG, the SWMUs were changed to IHSSs and one IHSS was assigned to OU 11, IHSS 168. The boundaries of OU 11 and IHSS 168 coincide. As per the IAG, draft and final Work Plans, and draft and final RCRA Facility Investigation/Remedial Investigation (RFI/RI) Reports were prepared and submitted to the regulatory agencies. The RFI/RI Report for OU 11 was defined by the Statement of Work (Attachment 2 of the IAG) to fulfill the IAG requirements for submittal of documentation and data necessary to determine if the risk from OU 11 warrants the need for remedial action.

The IAG scope of work was incorporated in its entirety within the Colorado Hazardous Waste Permit (CHWP) for Rocky Flats. Upon signature of the Corrective Action Decision/Record of Decision (CAD/ROD) by DOE, EPA, and the State of Colorado, the State shall modify the CHWP for Rocky Flats to incorporate the signed CAD/ROD for OU 11.

### **Highlights of Community Participation**

Results of the Combined Phases RFI/RI for OU 11 were presented to the public at the Rocky Flats Technical Review Group meeting on May 11, 1995. A public comment period was held concurrently for the *Proposed Plan and Draft Modification of CHWP for Rocky Flats OU 11 West Spray Field (IHSS 168)*. The public comment period was held from June 28, 1995 to August 28, 1995. At a public hearing conducted on July 19, 1995, public questions regarding the *Proposed Plan and Draft Modification of CHWP for Rocky Flats OU 11 West Spray Field (IHSS 168)* for OU 11 were answered but no formal public comments were made at this hearing. Written comments and comment responses on the *Proposed Plan*

and Draft Modification of CHWP for Rocky Flats OU 11 West Spray Field (IHSS 168) are located in the Responsiveness Summary section of this CAD/ROD

#### **Scope and Role of Operable Unit 11 within Site Strategy**

The scope, defined for OU 11 within Table 5 of the IAG, includes submittal of documentation and data required to close the regulated unit in accordance with the IAG. The RFI/RI work plans and reports were completed and submitted in accordance with the requirements specified within Table 5 and Table 6 of the IAG. No remedial action is required for OU 11 because the RFI/RI performed and documented in the Operable Unit 11 Combined Phases RFI/RI Report, determined that OU 11 is in a protective state.

#### **Site Characteristics**

The uppermost water bearing unit at Rocky Flats is unconfined and consists of surficial deposits (i.e., Rocky Flats Alluvium, colluvium, valley-fill alluvium, fill material, and disturbed ground), weathered bedrock units, and subcrops of the Arapahoe and Laramie Formations. The bedrock underlying OU 11 can be considered an aquitard. The direction of ground water flow within the surficial deposits is generally from west to east beneath OU 11. Recharge to the surficial water-bearing unit occurs primarily from precipitation. Discharge from the surficial water-bearing unit occurs primarily at minor seeps at Rocky Flats, however, these seeps are not located within the OU 11 boundary. Seeps occur in colluvial deposits that cover the contact between the alluvium and bedrock along the edges of the valleys. Discharge also occurs through seepage into other surficial and weathered geologic formations and through evapotranspiration.

The spray application of Solar Evaporation Pond liquids between April 1982 and October 1985, is the only known or suspected source of contamination at OU 11. The RFI/RI conducted in 1994, identified nitrate/nitrite, tritium, plutonium-239/240 and americium-241 as Contaminants of Concern (COCs) in soils. No COCs were identified in ground water. Rocky Flats Programmatic Preliminary Remediation Goals (PPRGs) served as the basis for toxicity and/or carcinogenicity evaluations of the COCs. The PPRGs are based on a one in one million carcinogenic risk and a non-carcinogenic hazard index of one under a residential use scenario. A comparison of the background value, the maximum OU 11 value, and the PPRG for each COC is presented in the following table (mg/kg - milligrams per kilogram, pCi/g - picocuries per gram).

<u>COC</u>	<u>Background</u>	<u>OU 11 Maximum</u>	<u>PPRG</u>
Nitrate/Nitrite	2.3 mg/kg	37 mg/kg	439,000 mg/kg
Tritium	0.1294 pCi/g	3.4 pCi/g	14,700 pCi/g
Plutonium-239/240	0.05 pCi/g	2.2 pCi/g	3.42 pCi/g
Americium-241	0.019 pCi/g	0.43 pCi/g	2.37 pCi/g

In each case the maximum concentration of the COC is less than the corresponding PPRG. This information was used to quantify the site risk as described in detail in the following section.

Surficial soils and subsurface geologic materials are the media hosting COCs and represent the principal pathways for contaminant migration at OU 11. Physical and chemical characteristics of the OU 11 soils, and the chemical characteristics of the COCs determine the mobility of the COCs. The chemical characteristics of nitrate support a two-fold fate for the compound. The first fate involves the relatively fast migration of nitrate/nitrite through ground water due to its high solubility in water. The second fate involves the uptake of nitrate/nitrite by nitrogen fixing plants in the area. The higher than normal plant biomass and lack of elevated levels of nitrate/nitrite in ground water indicates that much of the nitrate/nitrite from spray application was bound in surficial soils and associated vegetation before deep infiltration or downward migration could occur. Tritium, would be expected to be mobilized via ground water. However, tritium was not identified as a contaminant in ground water and there is no spatial

correlation between tritium in ground water and subsurface geologic materials. The geochemical behavior of americium and plutonium is dominated by their propensity to bind to soils under the geochemical conditions found at OU 11 and these radionuclides have exhibited little migration since the termination of spray activities. Thus, the potential for migration of the OU 11 COCs appears to be extremely limited.

An Applicable or Relevant and Appropriate Requirements (ARARs) evaluation was not performed because no COCs were identified in ground water, thus there were no applicable requirements for OU 11. In this case, the results of the CDPHE screen were determined to be the best indication that no action was necessary for the site.

### **Summary of Site Risks**

The risks to human health and the environment associated with OU 11 were characterized through the Combined Phases RFI/RI, which was completed in accordance with the requirements presented in the IAG and specifically identified in the Final Phase I RFI/RI Work Plan for OU 11. The Operable Unit 11 Combined Phases RFI/RI Report documents the results of the investigation including an evaluation of risks at the site in detail.

Human health risks at the site have been quantified using the CDPHE Conservative Screen process. The CDPHE Conservative Screen methodology consists of six steps:

- 1 Identify Contaminants of Concern (COCs)
- 2 Plot the occurrence of COCs to identify "source areas"
- 3 For each COC calculate a risk-based concentration (RBC). In this case the selected RBC was the PPRG. The basis for the RBC/PPRG was a one in one million carcinogenic risk and a non-carcinogenic hazard index of one, under a residential use scenario.
- 4 Identify the maximum concentration of a COC in each media (soils, air, and water)
- 5 Divide the maximum COC concentration by the RBC and sum by media
- 6 Compare the ratio sums to the decision criteria: a ratio sum less than one indicates a low-hazard site requiring no action, a ratio sum between one and 100 indicates a risk assessment should be completed, and a ratio sum greater than 100 indicates a voluntary corrective action may be undertaken.

At OU 11, four COCs were identified in soils, and no COCs were identified in other media. The four COCs in soil were nitrate/nitrite, tritium, plutonium-239/240 and americium-241. The concentration of these COCs at OU 11 are very low resulting in a CDPHE Conservative Screen ratio sum of less than one and a corresponding risk of less than one in one million. The ratio sum of less than one resulted in identification of OU 11 as a low-hazard site, requiring No Action under a residential use scenario.

The screening level ecological risk assessment concluded that past operations at OU 11 have had no significant adverse ecological effects. No negative effects to critical habitats, wetlands, or endangered species were identified. Trends in the ecological data are consistent with effects of supplemental watering and fertilizing in a semiarid grassland. While this may have caused effects to vegetation such as increased biomass and litter, the effects are not detrimental to the grassland ecosystem.

### **Explanation of Significant Changes**

No changes in the selected remedy have been made since the release of the *Final Proposed Plan and Draft Modification of Colorado Hazardous Waste Permit for Rocky Flats Environmental Technical Site Operable Unit 11 West Spray Field (IHSS 168)*.



## RESPONSIVENESS SUMMARY

*Proposed Plan/Draft Modification of the Colorado Hazardous Waste Permit for Rocky Flats Operable Unit 11 West Spray Field*

### **Commenter 1 had the following comment on the Proposed Plan:**

<b>Comment 1</b>
------------------

**Comment:** It takes a great leap of faith to believe that OU 11 is not grossly contaminated. It is more logical to believe DOE desperately needs some positive action, but this is no way to get it. This field represents over 100 acres of otherwise beautiful landscape that has been contaminated for years by millions of gallons of toxic waste water containing high levels of nitrates, metals, radionuclides, volatile organic compounds, and semi-volatile organic compounds. The organic compounds will be assimilated with time. The nitrates may help grass to grow and reduce wind dispersion of the metals and radionuclides, but the radionuclides and some metals will be there awaiting dispersion for thousands of years.

Given the proximity of this site to the Metro Denver Area and development potential, I suggest that DOE provide more evidence of the alleged benign risks to human health. I request a copy of the Final Combined Phases RFI/RI Report and other data that may support DOE's proposal.

As you may know, the RFCC is a completely independent organization dedicated to the safe and expedient cleanup of RFETS. It is authorized under Superfund to assess technical documents regarding the cleanup of the RFETS superfund site, as in this case. Our main problem is timely notice of the preliminary design data and a copy of the final document. We would appreciate your help. Thanks for your consideration.

**Response:** The Operable Unit 11 Final Combined Phases RFI/RI Report provides a comprehensive discussion of the OU 11 field investigation, site physical characteristics, nature and extent of contamination, contaminant fate and transport, and risk assessment for human health and the environment. The RFI/RI Report provides the data relevant to the question of risk which RFETS has collected. The site believes that the data support No Action, do not support "gross contamination," and are sufficient to support conclusions that No Action is protective of human health and the environment. The potential for migration of metals and radionuclides currently at the site appears to be extremely limited.

This report has been available for review at public reading rooms since June 26, 1995. The commenter was provided with a personal copy of the report by the CDPHE.

**Commenter 2 asked a series of questions relative to the OU 11 closure:**

**Question 1**

**Question.** When did the site first be considered contaminated?

**Response:** The West Spray Field was identified as a hazardous waste management unit regulated by the Resource Conservation and Recovery Act (RCRA) in 1986 because it was known to have received water containing hazardous constituents from the Solar Evaporation Ponds. Spray operations at the West Spray Field occurred from April 1982 through October 1985. Thus, the designation of the site as a hazardous waste management unit occurred soon after the termination of spray operations.

**Question 2**

**Question:** Was site considered contaminated prior to this report?

**Response:** Yes. The site has been recognized as potentially contaminated since its designation as a hazardous waste management unit under RCRA in 1986.

**Question 3**

**Question.** Was the contaminated site the full 105 acres prior to the report?

**Response:** The OU 11 boundary was established as part of the identification of the West Spray Field as a hazardous waste management unit under RCRA in 1986. Based on the operational history of the site, the OU 11 boundary was established to encompass all spray areas, but not all areas within the OU 11 boundary received direct spray application. The areas that did not receive direct spray application were included in the OU 11 boundary to account for factors such as wind dispersion and runoff.

**Question 4**

**Question:** This report concludes that the site is within acceptable levels of contamination for a residential use for a 30 year estimate. Does this mean the property can be used for commercial mining for the underlying mineral owners, as was previously approved and permitted?

**Response:** OU 11 has met the criteria for No Action under the Colorado Department of Public Health and Environment (CDPHE) Conservative Risk Screen using a residential use scenario, as documented in the Final RFI/RI Report. The CDPHE Screen is designed so that any site meeting the No Action criteria is open for unrestricted use. The residential use scenario integrated into the CDPHE Screen utilizes more conservative human health exposure criteria than a mining scenario would, and therefore, human health risk under a mining scenario would be less than presented within the Final RFI/RI Report. Thus, whether commercial mining can occur at the site is not affected by the RFI/RI Report.

**Question 5**

**Question:** Will any restrictions be placed on the site for future development?

**Response:** As stated in more detail in the response to Question 4, based on the CDPHE Screen, RFETS is proposing OU 11 could be open for unrestricted use.

#### Question 6

**Question** What is planned on being done to correct the public's perception that this area is still contaminated?

**Response:** The Final Combined Phases RFI/RI Report, Final Proposed Plan, and Final CAD/ROD are all documents available for public review. Newspaper advertisements have been published in the Denver Post and Rocky Mountain News notifying the public of the remedial alternative selected for OU 11. Additional newspaper advertisements will inform the public as to the final closure of OU 11 as documented in the Corrective Action Decision/Record of Decision (CAD/ROD).

#### Question 7

**Question:** With regard to the conclusion that there is very localized perching of ground water, will the excavation of minerals from the site affect the ground water or the saturation zone?

**Response:** This question cannot be accurately answered without knowledge of the design details of the possible mining operation. In addition this is not a DOE concern with respect to past operations at OU 11.

#### Question 8

**Question.** With regard to the conclusion that current conditions are unlikely to result in releases to the environment, would mining operations, which are not a current condition, result in such a release?

**Response:** The CDPHE Screen has shown that there is no significant source at OU 11 for a release. Therefore, it is highly unlikely that a change in current conditions, such as the initiation of mining activities, could result in the release of chemicals that constitute a threat to human health and the environment.

#### Question 9

**Question:** With regard to the statement that there is no current or imminent threat under present or projected land uses, do projected land uses include mining?

**Response:** As stated in more detail in the response to Question 4, the residential scenario integrated into the CDPHE Screen is more conservative than a mining scenario. Therefore, there is no current or imminent threat under present or potential future uses, including mining, with regard to OU 11.

#### Question 10

**Question:** Does the conclusion that there is minimal risk from dermal exposure include an assumption that mining may occur in the future and employees from a mining company may be on site excavating, etc on a daily basis?

**Response:** As stated in more detail in the response to Question 4, the residential scenario integrated into the CDPHE Screen is more conservative than a mining scenario. Therefore, the risk from dermal exposure risk during mining would be less than the dermal exposure risk presented in the Final RFI/RI Report.

### Question 11

**Question:** Does the closure plan assume that mining activities could occur? The report does not address this

**Response:** As stated in more detail in the response to Question 4, the residential scenario integrated into the CDPHE is more conservative than a mining scenario. Additionally, Clean Closure under RCRA and the No Action decision under CERCLA implies no restrictions are necessary to be protective of human health and the environment, including commercial mining restrictions.

**Commenter 3 questions the results of the RFI/RI Report as follows:**

### Comment 2

**Comment:** The McKays believe that the Final Report is inadequate. The Final Report (June 1995) concerning Operable Unit 11 concludes that "OU 11 poses minimal health risks, assuming long term residential exposure." However, the Final Report fails to discuss at all let alone address the McKay's mineral interests or the fact that mining has been permitted. The Final Report therefore does not address whether the use of this property for the mining of gravel, clay, sand, and the like will pose any hazards to the human health or the environment. These issues need to be specifically addressed particularly as the Final Report does indicate the presence of Americium-241, Plutonium-239, 240, Tritium, and Nitrate/Nitrite in the surficial and subsurface soils. Identically, the effect of mining on the localized perched ground water noted in the Report must be specifically addressed. Finally, the Final Report does not address what remediation activities will be necessary to permit full use of the property or the time table for such remediation activities.

**Response:** The Final RFI/RI Report does not specifically include references to mining. However, the residential scenario integrated in the CDPHE Screen is more protective of human health and the environment than a mining scenario. Therefore, mining of this site would not pose significant risk to human health or the environment with regard to OU 11. Furthermore, RCRA Clean Closure and the No Action decision under CERCLA imply that no restrictions, including mining restrictions, are necessary to be protective of human health and the environment. All collected data is presented in the RFI/RI Report for review. The No Action decision would also mean that the regulators would not require remediation of OU 11, thus RFETS has not considered a schedule or work plan for remediation. Without knowing the design details of a mining operation, there is no way to determine what, if any, effects such mining might have on perched ground water.

## **Appendix A - References**

**EG&G, 1992** EG&G Rocky Flats, Inc , Phase I Geologic Characterization Data Acquisition - Surface Geologic Mapping of the Rocky Flats Plant and Vicinity, Jefferson and Boulder Counties, Final Report, Golden, Colorado, March 1992

**EG&G, 1995** EG&G Rocky Flats, Inc , Operable Unit 11 Combined Phases RFI/RI Report for the Rocky Flats Environmental Technology Site, Golden, Colorado, June, 1995

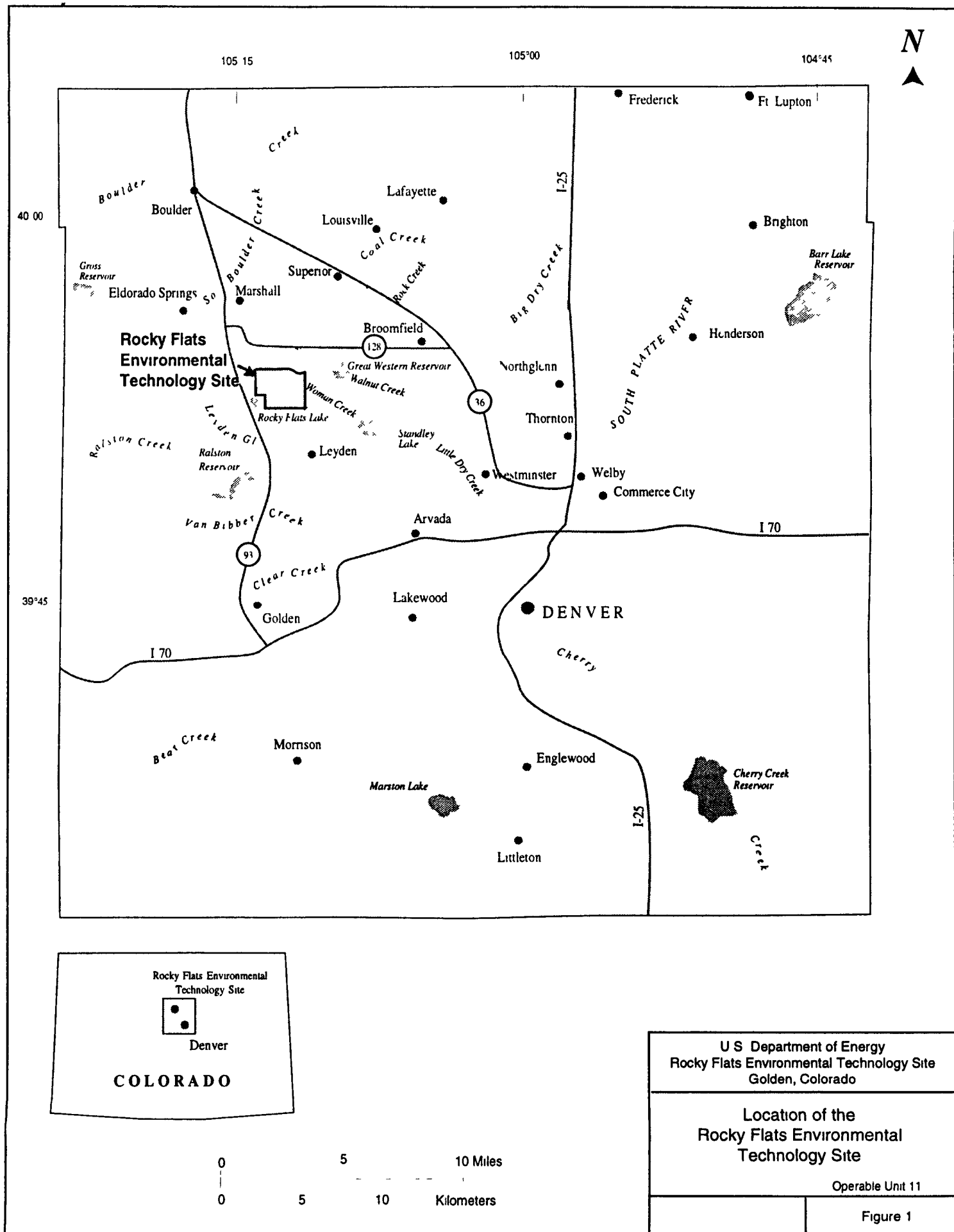
**Rockwell International, 1986a**: Rockwell International, Annual Environmental Monitoring Report, January-December 1985, Golden, Colorado Rockwell International, Rocky Flats Plant, Report RFP-ENV-85, 1986

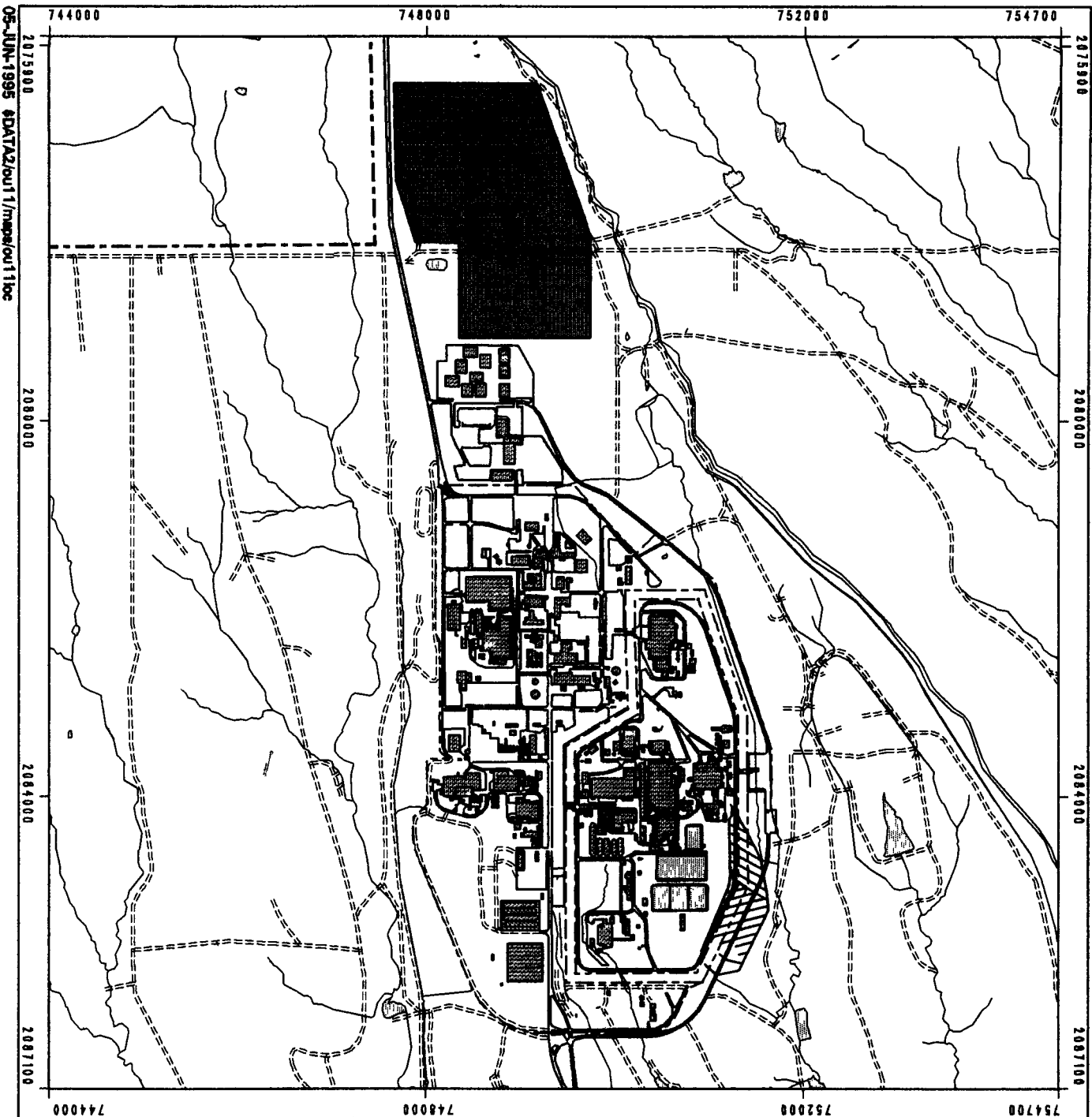
**Rockwell International, 1986b** Rockwell International, Resource Conservation and Recovery Act Part B - Post Closure Care Permit Application for U.S. Department of Energy, Rocky Flats Plant, Hazardous and Radioactive Mixed Wastes, U S Department of Energy, unnumbered report, 1986

**U S DOE, 1986** U S Department of Energy, Comprehensive Environmental Assessment and Response Program Phase I, Draft Installation Assessment, Rocky Flats Plant, Washington, D C , DOE unnumbered draft report, 1986

**U S DOE, 1991a** U S Department of Energy, 1989 Population, Economic, and Land Use Data Base for the Rocky Flats Plant, Golden, Colorado, Washington, D C , DOE, in press, 1991

**U S DOE, 1991b** U S Department of Energy, Federal Facility Agreement and Consent Order (Interagency Agreement [IAG], DOE, EPA, and CDH), Washington, D C , January 22, 1991





## EXPLANATION

- Interceptor Trench System
- Streams and Drainages
- == Paved Roads
- Dirt Roads
- Security Fences
- Rocky Flats Boundary
- OU 11 (IHSS 166)
- Lakes and Ponds
- Buildings and Trailers



Scale = 1" = 18200 feet  
1 inch = 1800 feet

State Plane Coordinates Projection  
Colorado Central Zone  
Datum NAD27

U S Department of Energy  
Rocky Flats Environmental Technology Site  
Golden, Colorado

## Location Map

Operable Unit 11

Figure 2